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Contemporary Themes

Social Effects of Fractures of the Neck of the Femur

T. GLYN THOMAS, R. S. STEVENS

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Summary

One-hundred-and-five patients were visited at home one year or more after they had been treated for proximal femoral fractures to assess the extent to which their social independence had been affected by the incident. Since the accident 25% had become more dependent. The principal factors contributing to this outcome included established dependence, great age at the time of injury, and a poor clinical result. The implications for social services and community care of preventing social impairment justify a more comprehensive investigation. The need for close co-operation between orthopaedic surgeons and geriatricians, already widely acknowledged, is further emphasized.

Introduction

Fractures of the proximal part of the femur, essentially a disease of old age, have been studied jointly by orthopaedic surgeons and geriatricians,^{1, 2} and the epidemiology of fractures of the femoral neck has recently been reviewed.³ In Malmö the incidence was almost doubled for each five-year increment of age over 60 years.⁴ The total female population of the U.S.A. trebled from 1900 to 1960 but the numbers of fractures increased twice as quickly—from 11,000 to 62,000—because of the rapid increase in the older age groups.⁵ Thus these fractures constitute a special and increasing problem in many parts of the world and a "team" approach is the correct one.⁶ Where a joint approach does not exist the least that can happen is serious interruption of the flow of patients through orthopaedic wards.⁷ There are numerous descriptions of survival and morbidity rates after these fractures.^{8, 9}

The impact of the problem on society now and in the future has not been studied before. We therefore pursued a joint inquiry into the social consequences of this accident in elderly patients in a part of England where 19.7% of the population is over 65.

Patients and Methods

The hospital records of 205 consecutive cases of fractures of the proximal end of the femur were reviewed at least one year after the injury. Twenty-five patients had died in hospital, 39 died after discharge, another 24 patients could not be traced, and 12 known survivors had left the district.

Beals's study⁸ of survival after hip fractures suggests that a hospital mortality of 12.5% and a one-year survival rate of 50% is normal for this condition. The corresponding figures in our group were 12.2% and 54.6%. Examination of the other basic data showed that this group did not deviate appreciably from other published series in any important clinical respect.

Of the 105 patients who were visited one was not included because no surgical operation had been necessary, and the four youngest patients (aged less than 57 years) were omitted. The age and sex of the remaining 100 patients are shown in table I.

TABLE I—Age and Sex of 100 Patients followed up One Year after Fracture of Neck of Femur

Age (Years):	57-64	65-74	75-84	≥85	Total
Men	2	7	6		15
Women	10	24	33	18	85
Total	12	31	39	18	100

TABLE II—Length of Interval between Fracture and Operation in 86 Patients

No. of days	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	>10
No. of patients	18	29	20	12	2	1	2		1		1

The fracture was attributed to an "accident" in 62 cases, and there was no history of accident in 35 and no record in 3, but such a retrospective analysis is unreliable. Significant medical disability which contributed to or complicated the fracture was found in 82 cases.

Most of the fractures were trochanteric (40 cases) or subcapital stage III or IV (49).¹⁰ Another five cases were subcapital stage I or II, four were subtrochanteric, one was of another type, and in one case there was no record of the type of fracture.

PREOPERATIVE INTERVAL

The preoperative interval, which varied for several reasons—for example, delay in admission, the policy of the hospital—is

Buckland Hospital, Dover

T. GLYN THOMAS, M.B., F.R.C.S., Orthopaedic Surgeon

St. Mary's Hospital, Etchinghill, Folkestone

R. S. STEVENS, M.D., F.R.C.P., Physician in Geriatrics

shown in table II for the 86 cases recorded. Three-quarters of the patients were treated by internal fixation and the remainder with a primary prosthesis.

Two thirds of the patients were out of bed within 48 hours of operation, and two-thirds first walked within 10 days. One-third of this group of survivors had suffered recorded complications such as deep vein thrombosis, wound sepsis, "bronchopneumonia" (often confused with pulmonary infarction), or temporary worsening of pre-existing medical disease. Forty-seven patients were discharged in less than 20 days, 31 within the next 20 days, 16 in 40-69 days, and three after more than 90 days in hospital (three cases were not recorded).

VISITS TO SURVIVORS

At the time of the visit the following factors were assessed or re-examined:

- (1) The patient's health and social circumstances immediately before the accident (by observation, interview, and inference).
- (2) The clinical result, which was graded as good, fair, or poor by the criteria of Bonnin and Cashman.¹¹
- (3) The patient's present environment and degree of independence, which we divided into six grades as follows: Grade 1, *coping*—the patient was fully or potentially independent and working (if applicable). Grade 2, *almost coping*—the patient needed some support—for example, the spouse sharing home-management, an occasional home help, or neighbours or relatives visiting regularly but not cohabiting. Grade 3, *help necessary*—the patient lived at home with organized regular support from, for example, a home help, a district nurse or health visitor, a relative living in or the patient's spouse, meals on wheels, or the W.R.V.S. or the patient lived in an old people's flat supervised by a warden. Grade 4, *passenger*—the patient lived with and was dependent on others and was non-contributory. Grade 5, *Resident in private or local authority home*. Grade 6, *Patient in long-stay (continuing care) ward*—the patient needed full-time nursing care.

Results

The level of dependence before the accident and one year later was assessed (table III). Only one patient became more independent, 25 were more dependent than they had been before the accident (group 1), and 74 patients were neither more nor less dependent (group 2).

TABLE III—Level of Dependence before and after Fracture

Grade before Fracture	Grade after Fracture						Total
	1	2	3	4	5	6	
1	38	12	4	2			56
2	1	17	3		1		22
3			8			1	9
4				1		1	2
5					8	1	9
6						2	2
Total	39	29	15	3	9	5	100

In an attempt to identify factors which might predispose to an impaired social result we examined the patients' ages and their known health and level of dependence before the accident, the circumstances of the event, and the clinical result.

A poor clinical result seemed to bear a close relation to a poor social outcome. Of the 36 patients with a fair or poor clinical result 16 had one year later become more socially dependent,

whereas only nine out of 64 patients with a good clinical result had been so affected (table IV).

TABLE IV—Data on 100 Patients who Fractured Neck of Femur. Results expressed as Proportion of Patients

	Group		Total	% Deteriorated
	1	2		
Age:				
Under 75	7	36	43	16
Over 75	18	39	57	32
Known pre-existing medical condition:				
No. with	21	61	82	26
No. without	4	14	18	22
Fracture:				
Accidental	13	49	62	21
Spontaneous	12	23	35	34
Not known			3	
Result:				
Good	9	55	64	14
Fair	13	17	30	43
Poor	3	3	6	50
Original grade:				
Grade 1 or 2	12	54	66	18
Grade 3-6	12	21	33	36
Unknown	1		1	100

When we examined the original level of social dependence, which was known in 99 cases, we found that 12 out of 33 originally dependent individuals had become more dependent but only 12 of 66 patients who had originally been sharing or were solely responsible for the home had declined in social competence. Put another way, it became increasingly obvious that the presence of a spouse or companion had been a powerful spur to physical recovery. Furthermore, the effect of that person often seemed to be increased if the patient was the dominant or "needed" partner.

Case Reports

Case 1.—This patient, an 88-year-old woman, was already suffering congestive cardiac failure of ischaemic origin when she sustained a trochanteric fracture. Despite a good clinical result her cardiac failure continued to worsen and her level of dependence fell from grade 2 to grade 5.

Case 2.—This 72-year-old woman with Paget's disease sustained a subtrochanteric fracture and suffered severe postoperative haemorrhage. Union was long delayed; she remained eight months in hospital and on discharge was still wearing a calliper. Thereafter she moved to live with her daughter but regained good mobility—probably in response to the family's need for her to care for several grandchildren. Her level of dependence was grade 1-2.

Case 3.—This 81-year-old woman had congestive cardiac failure. She sustained an impacted subcapital fracture. The clinical result was poor though x-ray examination showed the fracture to be united. The patient became more dependent on her daughter (grade 1-2) until the latter moved away and the patient was admitted to a residential home (grade 6).

Case 4.—The arthritic knee of this 69-year-old woman "gave way," and she fell and sustained a displaced subcapital fracture (and a Colles's fracture). She lived in a house difficult of access and difficult to run. She suffered a further fall and fracture of wrist eight months later, but she remained in grade 1 devotedly caring for her invalid husband.

Case 5.—This 58-year-old woman underwent internal fixation of a displaced subcapital fracture with a good clinical result, but she became dependent on her husband, who was available and willing to look after her. Her level of dependence was grade 1-2.

Case 6.—This 75-year-old woman had prosthetic replacement for a subcapital fracture. The prosthesis was loose and causing pain, and thus the clinical result was poor, which caused a drop from grade 1 to grade 4.

Case 7.—This 60-year-old man was probably drunk when he fell down a ship's companionway and sustained a trochanteric fracture. Despite an apparently good clinical result he regressed from grade 1 to grade 3 though well supported by his wife. He seemed to live in expectation of compensation for the injury and loss of earnings.

Case 8.—This 75-year-old woman had a fair clinical result after prosthetic replacement of her femoral head. Her attitude seemed passive,

but since the injury she had married a man 40 years her junior. The need to keep up appearances might have accounted for the shallowness of the decline from grade 1 to grade 2.

Discussion

Proximal femoral fractures occur more often with advancing age and especially in very old people. The projected population figures for the rest of this century indicate that the incidence of these injuries will continue to increase for the next three decades because of the increasing numbers of people over 75 years. Not surprisingly, therefore, geriatricians and orthopaedic surgeons take a common interest in this group of fractures which so often presents combined medical and social problems.

Ideally a combined clinical approach is needed when the patient is admitted so that his or her medical state can be completely diagnosed before operation. In this paper we emphasize the importance of pre-existing medical abnormalities. The team should continue to devise the rehabilitation programme to suit and improve the mechanical and medical potential of each individual. By such means some patients may be medically more fit on discharge than before the accident. In this respect we are tempted to go further than Beals's⁸ goal of returning the patient to his prefracture state, though our ideal was not applicable to this series.

Several factors affect the quality of life attainable one year after the injury, some of which can be influenced by treatment or other means and some of which are unalterable. For example, the chances of social deterioration seem to be doubled if the patient is over 75 years. We have shown that the surgical result influences the social outcome, and we hope that improved techniques, particularly directed at displaced subcapital and

very unstable trochanteric fractures, will eventually achieve better results. Perhaps general acceptance of the idea of the orthopaedic-geriatric team would improve recovery rates.

Nevertheless, and despite any marginal improvements that may be obtained by these means, the real need is for adequate resources in hospital and community to deal with the social consequences, especially because pre-existing social handicaps lead to further social breakdown when complicated by femoral fractures. To claim the need for resources is to state the obvious, but a larger prospective study is now being planned to measure these needs and to identify more precisely the possible ways to meet them.

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Around Europe

What Can We Learn From Sweden?

B. E. C. NORDIN

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A recent visit to Sweden on behalf of the British Council yielded some information about the Swedish solution to some of the problems now besetting the medical profession in this country. The way in which the Swedes have tackled, and apparently solved, the problem of overtime for doctors is particularly interesting and may help the present controversy in Great Britain.

Hospital Services

The hospital services are administered on a regional basis but terms of employment are negotiated at the national level between the Swedish Medical Association and the health

authorities. Some 95% of Swedish doctors belong to the Swedish Medical Association which represents all branches of the profession. The competing claims and interests of different branches of the profession, consultants and general practitioners, juniors and seniors, are first reconciled within the profession before any negotiating position is adopted. As far as one can tell there is no question of the Government negotiating separately with different sections of the profession except for administrative posts.

A remarkable feature of the Swedish system is the way in which they have solved the problem of extra work and on-call duties. Their solution, hammered out between the Swedish Medical Association and the Government in two stages—in 1964 and 1970—is based on the idea of a basic working week of 40 hours which applies to all grades of doctor in the hospital service. The salary for any particular job is based on a certain rate for a 40-hour week, which is at present about £12,000 per annum for consultants. The actual number of hours to be worked is, however, fixed by agreement with each individual doctor on his appointment to his particular job and is usually about 46 hours. The extra six hours are paid at the same basic rate as the basic 40

M.R.C. Mineral Metabolism Unit, The General Infirmary, Leeds
B. E. C. NORDIN, M.D., F.R.C.P., Director, M.R.C. Mineral Metabolism Unit